IMCG Bulletin: April 2018

INTERNATIONAL MIRE CONSERVATION GROUP

www.imcg.net

Word from the Secretary-General

Dear mire friends

Here is the April issue of your IMCG Bulletin, which reaches you from Belarus, where I am on the annual peatland excursion with my students. For us from Western-Europe, the peatlands of Belarus are amazing, not only because of the large-scale destruction, but also because very nice peatlands have survived of which many are well-protected. For most students it is the first time that they see extensive pristine mires, as must have once also covered our countries. In many countries of the world peatlands are under threat, but also good examples of conservation and restoration can be found. Read about it in this Bulletin.
And don't forget to nominate yourself for Main Board member. We need at least 10 nominations more!
Keep sending news, photographs, papers and other contributions (including nominations, resolutions etc. for the IMCG General Assembly) for the next Bulletin by June 3, 2018 to Hans Joosten at joosten@uni-greifswald.de.

Contents of this Bulletin

IMCG issues

2018 IMCG Field Symposium/General Assembly
Arrival: Monday August 20, Amsterdam, departure: Saturday, September 1, Amsterdam.
IMCG Symposium 22 August: NIOZ, Island of Texel; IMCG General Assembly: 31 August in Utrecht
Field excursions: Tuesday 21 (Island of Texel) and August 23-31. Number of participants: 50 max. (registration closed. Keep an eye on the website: http://www.imcg.net/pages/events/imcg-2018.php

IMCG General Assembly 31 August 2018,

On the IMCG General Assembly 2018 in the Netherlands only a limited number of IMCG members will be present, and only limited time will be available. Therefore we will arrange the discussions and decisions largely by internet and email. The January Bulletin contained the preliminary agenda for this Assembly and in the beginning of July 20018 we will produce a Bulletin containing the documents for the Assembly and all information on how the voting per email or snailmail will be done. We will furthermore open a special place on the website where discussion papers can be made available. Therefore: provide the IMCG secretariat with additional agenda points and submit your background papers, concrete proposals, draft resolutions, contributions for discussion, nominations for the IMCG Main Board and for Honorary Life membership, etc. until 30 June 2018. Send the material in as soon as possible to joosten@uni-greifswald.de– the sooner the better – so that we can arrange the democratic procedures in a smooth way.

Main Board nominations

After the first batch in the March Bulletin, here again some nominations for the new IMCG Main Board. Don't hesitate to run for MB member: we need 15 members for a full Main Board and we should again strive for a fair representation with respect to geography, expertise, gender, and age.

Tatiana Minayeva (World, female, 55 years)

Got education as classical geobotanist in Moscow State University in the 1980s (USSR) and PhD in Mire Science under supervision of Marina Boch in Komarov Botanical Institute (St Petersburg, Russia). Joint IMCG in 1997. Worked on peatlands ecological research, conservation, including protection, restoration and wise use in Russia (boreal and Arctic peatlands), Mongolia and Canada in different positions: researcher in the Central Forest Biosphere Reserve in Russia, manager of scientific research for decision making in governmental structures in Russia, project coordinator in Wetlands International in Russia and in The Netherlands.

Currently Tatiana is working in the consultancy Care for Ecosystems in Germany and cooperates with Wetlands International as associate expert and with the Peatlands Ecosystem Centre of the Institute of Forest Sciences RAS. Since the late 1990s Tatiana with colleagues was raising funds and coordinating various activities on peatlands conservation in Russia and Mongolia which made a difference. Tatiana was involved in many international initiatives within the Ramsar Convention on Wetlands being Ramsar STRP member and Secretary of the Coordinating Committee of Global Action on Peatlands (CCGAP). She also participatedl in the work of other international agreements (CBD, UNFCCC, CAFF) working on their synergy for mire conservation. She has long term experience of cooperation on peatlands conservation with NGOs, governments and private sector – such as peat industry, oil and gas companies etc. Tatiana has more than 200 publications on mire research, conservation and restoration. She was member of both the Main Board and Executive Committee of IMCG several times and organised the IMCG excursion to the Russian Arctic last year.

Olivia Bragg (Scotland/UK, female, a little over 60 years)

A first degree combining biological and physical sciences at Cambridge University led to postgraduate research in Dundee (Scotland) which got me totally 'hooked' on mires. After seven years as a postdoctoral researcher in what I decided to call 'mire ecohydrology', the supply of things to do with and for peatlands and peatland people - both in Scotland and elsewhere in the world - has never stopped At various times I have been classified as an academic, a private consultant and a Biologist. Nowadays I am a Research Fellow in Geography working primarily on severely degraded mires in the Scottish Cairngorm Mountains with a view to finding ways to restore the most difficult sites. Because it is important that peatland people communicate with one another, I have organised and helped with various peaty conferences over the years and I was co-ordinator of the Darwin

Initiative Peatland Biodiversity Programme which shared Scottish expertise with peatland experts from central/east European countries in preparation for their accession to the European Union. As an IMCG Main Board member, I took my duties in re-establishing contact with all of our ~140 members from the UK, Ireland and Icelandrather seriously, successfully locating all except three of them. However, since 2004 my main contribution has been setting up and running our joint (with IPS) open access journal Mires and Peat which aims to help 'peaty' researchers everywhere to publish their work. My vision for peatland conservation worldwide is that by sharing knowledge, experience and ideas, humankind will manage these precious ecosystems more effectively and with fewer disastrous outcomes in years to come. We need 'new blood' on the Main Board, but if there are not enough people or female candidates this time, I am happy to continue.

Mires and Peat

In April 2018 the following papers were published in our scientific journal Mires and Peat:

- Impact of two hot and dry summers on the community structure and functional diversity of testate amoebae in an artificial bog, illustrating their use as bioindicators of peatland health. [I. Koenig, K. Christinat, M. d'Inverno & E.A.D. Mitchell] Volume 21: Article 08 http://mires-and-peat.net/media/map21/map_21_08.pdf
- The hydrophobic modification of gypsum binder by peat products: physico-chemical and technological basis. [O. Misnikov] Volume 21: Article 07 http://mires-and-peat.net/media/map21/map_21_07.pdf

Find the journal online at http://mires-and-peat.net/ . Send your new manuscripts to Editor-in-Chief Olivia Bragg: o.m.bragg@dundee.ac.uk

Papers

The Peatland and Nature Conservation International Library PeNCIL

Hans Joosten (joosten@uni-greifswald.de)

In 2013, Greifswald University, the Michael Succow Foundation and private collectors launched the Peatland and Nature Conservation International Library (PeNCIL) in public private partnership. PeNCIL aims at gathering *all* publications related to peatlands and nature conservation worldwide and to make and keep these available for scientists, students and practitioners. We collect peatland literature in the widest sense, i.e. not only scientific publications, but also novels, poetry, pictures and maps that give an idea how people have dealt and deal with peatlands. We have created PeNCIL based on our experience that old and grey literature harbours a wealth of useful information and that the modern focus on very recent references does not give credit to the people who deserve it and – more importantly - keeps strategic sources of knowledge untapped. PeNCIL is – next to the Global Peatland Database, the Database of Potential Paludiculture Plants, and the knowledge platform MoorWissen – one of the central information pillars of the Greifswald Mire Centre. PeNCIL is facilitated by the Library fund of the Bernhard and Ursula Plettner Foundation.

PeNCIL is rapidly growing and already contains important collections of peatland books, such as the libraries of Gisbert Große-Brauckmann, Michael Succow and Hans Joosten (including a major part of the classic Russian peat library of Siegfried Schneider). Recently PeNCIL received notable contributions from the estates of C.A. Weber (Bremen), Roel Janssen (Utrecht), Herb Wright Jr. (Minneapolis) and the significant Finnish and Russian library of Tapio Lindholm (Helsinki). Also other peatland scientists and conservationists have promised their collections to the dedicated library with its active user environment. Grants of the Plettner Foundation have in recent years allowed to acquire an extra 3,700 publications, including rare and very old ones. The oldest book in the collection is at the moment 'De virginitate & pudicitia coniugali' ('On virginity and chastity in marriage', Bonfini 1621), indeed not a peatland book but – for unknown reasons - bound together in a contemporaneous leather cover with the first scientific book publication on peatlands: Martinus Schoockius (1658): 'Tractatus de turffis, ceu cespitibus bituminosis'. Special, but not scientific is also the 1652 booklet "Veen boers praetjen tusschen drie gebuyren Kees, Iaep en Syme, gehouden te Stomp-wijck in t baggeren van haren turf. Raekende staet der Nederlanden en parlement van Engelandt" dealing with the decision of three peat dredgers to stop extracting peat and join the First Anglo-Dutch War (1652–54).

The PeNCIl collection was instrumental in preparing the European Mires Book, here with Franziska Tanneberger, Asbjørn Moen and Stephan Busse.

Heidi and Axel Weber with publications of Axel's grandfather C.A. Weber in the PeNCIL collection.

Axel and Heidi Weber with C.A. Weber's 1902 Augstumal monography, translated for IMCG by John Couwenberg in 2002. Photos: Tobias Dahms.

Tapio Lindholm (l) transferring 400 kg of books to PeNCIL, November 2017. Photo: Risto Lehtinen.

Digging

by Seamus Heaney

Between my finger and my thumb
The squat pen rests; snug as a gun.

Under my window, a clean rasping sound
When the spade sinks into gravelly ground:
My father, digging. I look down

Till his straining rump among the flowerbeds
Bends low, comes up twenty years away
Stooping in rhythm through potato drills
Where he was digging.

The coarse boot nestled on the lug, the shaft
Against the inside knee was levered firmly.
He rooted out tall tops, buried the bright edge deep
To scatter new potatoes that we picked,
Loving their cool hardness in our hands.

By God, the old man could handle a spade.
Just like his old man.

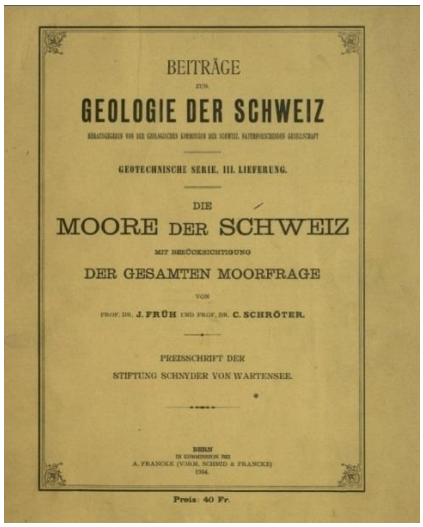
My grandfather cut more turf in a day
Than any other man on Toner's bog.
Once I carried him milk in a bottle
Corked sloppily with paper. He straightened up
To drink it, then fell to right away
Nicking and slicing neatly, heaving sods
Over his shoulder, going down and down
For the good turf. Digging.

The cold smell of potato mould, the squelch and slap
Of soggy peat, the curt cuts of an edge
Through living roots awaken in my head.
But I've no spade to follow men like them.

Between my finger and my thumb
The squat pen rests.
I'll dig with it.

'Digging' appeared in Seamus Heaney's first collection, Death of a Naturalist*, in 1966.*

The PeNCIL collection currently comprises 25,000 publications, of which over 5,000 books have meanwhile been catalogued and made accessible via the Greifswald University OPAC system. OPAC shows - after entering the search function SGN+197* - all books of the peatland library that already have been catalogued. Most books can - after ordering in OPAC - be consulted in the reading room of the central university library. Opportunities for studying old and rare books and for longer-term research studies in the peatland library can be inquired under bibliothek@greifswaldmoor.de. In addition, the older part of the library stock is gradually being digitalized and made available in the Digital Library of Mecklenburg-Vorpommern. The library is located in the historic villa at Ellernholzstraße 1/3, three minutes' walk from Greifswald Central Station and amidst institutions of the Greifswald Mire Centre.


BEITRÄGE
ZUR
GEOLOGIE DER SCHWEIZ
GEOTECHNISCHE SERIE. III. LIEFERUNG.
DIE
MOORE DER SCHWEIZ
MIT BERÜCKSICHTIGUNG
DER GESAMTEN MOORFRAGE
VON
PROF. DR. J. FRÜH UND PROF. DR. C. SCHRÖTER.
PREISSCHRIFT DER
STIFTUNG SCHNYDER VON WARTENSEE.
Preis: 40 Fr.

*Left: '*Die Moore der Schweiz*' (Früh & Schröter 1904) was the first book digitalized by PeNCIL. Right: Peatland readings evening in the library. Photo: Tobias Dahms.*

Knowledge and fascination on peatlands is worth sharing and spreading – also in unconventional format. That's why PeNCIL offers every autumn and winter a series of 'Peatland readings' (in German) in which Hans Joosten narrates on peatland books, their authors and their times and explores the role of peatlands in history, art and culture. The readings – for a selected audience in the special ambience of the large library room in the Ellernholz-villa –enjoy high popularity.
PeNCIL welcomes your publications (incl. grey literature) on peatlands and nature conservation, which you can send to Hans Joosten, Michael Succow Foundation, Ellernholzstr. 1/3, 17489 Greifswald, Germany. If you want to donate or bequest larger collections, please contact Hans Joosten (joosten@uni-greifswald.de).

PeNCIL cherishes hardcopy publications and will continue to do so!

Peatland news

Global

Bonn Climate Change Conference - April/May 2018

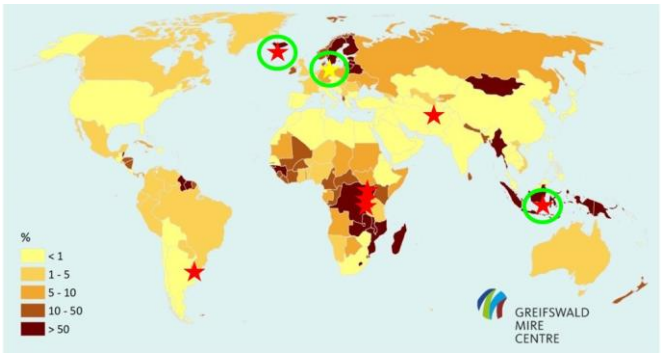
The Bonn Climate Change Conference convened all three subsidiary bodies of the UN Framework Convention on Climate Change (UNFCCC), including the Subsidiary Body for Implementation (SBI 48), the Subsidiary Body for Scientific and Technological Advice (SBSTA 48), and the Ad Hoc Working Group on the Paris Agreement (APA 1-5). The Conference brought together over 3400 participants, including 2000 government officials, 1400 representatives from UN bodies and agencies, intergovernmental organizations and civil society organizations, and 38 members of the media. The meeting was largely focused on advancing work on the Paris Agreement Work Programme, a set of decisions that will operationalize the Paris Agreement and facilitate its implementation. This programme has to be completed at the Katowice Climate Change Conference in

December 2018. As time is running short, an additional negotiating session has been planned for 3-8 September 2018 in Bangkok.

A unique feature of the April/May conference was the Talanoa Dialogue, which took stock of collective progress towards the Paris Agreement's long-term goals around the questions "Where are we?" "Where do we want to go?" and "How do we get there?" Many welcomed the Dialogue's informal and non-adversarial configuration, which allowed participants to engage with each other "not as negotiators, but as human beings." With its focus on values such as 'mutual trust' and 'loyalty to the planet' the conversation provided an opportunity to reorient countries towards the bigger picture on which nearly all agree: the need to achieve the vision set out in the Paris Agreement. A synthesis report on these issues will be presented in December 2018.

SBI and SBSTA furthermore adopted a decision on a roadmap of the Koronivia Joint Work on Agriculture, which might be relevant for peatland agriculture (the main cause of peatland destruction), whereas the SBI recommended to consider coordination of support for mitigation actions in the forest sector by developing countries.

In its conclusions SBSTA welcomed the updates provided by parties on their experience in using the IPCC 2013 Supplement to the 2006 IPCC Guidelines for National GHG Inventories: Wetlands (dealing with peatland rewetting and other wetland issues), and encouraged parties to continue gaining experience in using the Supplement. SBSTA furthermore agreed to keep discussing additional LULUCF activities under the CDM (incl. peatland rewetting?), 'non-permanence', 'additionality' and 'more comprehensive accounting of LULUCF', and to come with proposals on these issues for the meeting of the Parties to the Kyoto Protocol in November 2019.



Nur Masripatin (Indonesia) addressing the side-event and countries that address peatlands in their NDCs.

These latter issues were also subject of discussions of the side-event on the "Future of the Voluntary Carbon Markets in the Light of the Paris Agreement: Perspectives for Soil Carbon Projects" with special attention to peatlands, organized by Silvestrum Climate Associates, Greifswald Mire Centre and the Federal Environment Agency of Germany. This workshop addressed the question: how will voluntary carbon schemes (carbon credits) develop under the pathway of the Paris Agreement, where countries, at five-year intervals, will submit successively more ambitious Nationally Determined Contributions (NDCs) on how and how much the country is planning to reduce its emissions, leaving less and less room for additional voluntary initiatives . The research team presented a preliminary matrix of rules and thresholds – on double counting, additionality, transparency requirements, results-based finance, safeguards and impact evaluation, among others – to guide future voluntary carbon approaches.

- http://enb.iisd.org/vol12/enb12726e.html

Protected Area Downgrading, Downsizing, and Degazettement

Once considered almost inalienable, protected areas today are facing an array of legal threats collectively known as PADDD — "Protected Area Downgrading, Downsizing, and Degazettement." Downgrading occurs when a government weakens the legal status of a protected area, generally to allow activities such as mining, logging, or wildlife harvesting. Downsizing involves carving away pieces of the protected area. And degazettement means abolishing the protected area altogether. Lucrative mining interests are the biggest cause of PADDD. But fossil fuels, logging, infrastructure projects, and even agricultural plantations are also driving PADDD events. Such events are happening so often today that there's a special website, known as PADDD Tracker, that tries to keep track of them all.

PADDD is becoming a global crisis. Even World Heritage Sites — supposedly the pinnacle of Earth's protected areas — are feeling the bite. For example, the Selous Game Reserve in Tanzania, a famous World Heritage Area, was shrunk in 2012 to allow a massive uranium mine. In 2011, Cambodia carved out a section of its largest national park — Virachey — to build a vast rubber plantation. At the time, a government official defended the decision with an Orwellian statement: "It is not against the law when the government approves it." And it's not just developing nations that are pushing PADDD.

In the U.S., the Trump Administration slashed 85 percent of Bears Ears Monument in Utah — an area of great cultural, geological, and environmental importance. Trump has also cut the Grand Staircase-Escalante National Monument by nearly half to allow oil and gas drilling — and wants to reduce three vital marine parks while opening them up to commercial fishing. And last year, Australia's federal government proposed what WWF called "the largest protected area downgrading in the world" when it announced that it wanted to allow commercial fishing in nearly half a million square kilometers of marine parks.

Rising temperatures were a key driver of peatland formation after the last glacial maximum

Researchers from the University of Leeds, the University of Bristol and Memorial University in Canada, have simulated the local changes in climate that took place across the world during the last 26,000 years, when the glaciers of the last ice age began to retreat. Combining the simulations with radiocarbon dates of peatland initiation they discovered that higher local summer temperatures, rather than increased rainfall, led to the formation of peatlands in formerly glaciated regions such as North America, northern Europe, and Patagonia.

Lead researcher Dr Paul Morris, from the University of Leeds' School of Geography, said: "This work helps explain the genesis of one of the world's most important ecosystem types and its potentially fragile carbon store. It is important that we strengthen our knowledge about the causes of peat initiation, particularly given the concern about future climates, and the important role that peatlands play in combatting climate change."

The new research helps build an understanding of the role of climate in peat formation, which is particularly relevant when considering how the distribution and abundance of peatlands might change under future climates. The research also shows the climatic changes that the world's peatlands have endured since they first developed, providing context for future warming. The authors warn that the likely rates and severity of future climate change far exceed what the world's peatlands have previously experienced, leaving their huge carbon stores potentially vulnerable to degradation.

- https://www.sciencedaily.com/releases/2018/04/180416155626.htm

News from IPS

The Executive Board (EB) of the Int. Peatland Society (IPS) met 16 - 17 April in Vilnius, Lithuania and decided on the recruitment of a fulltime Secretary General and the recommendation that the Chinese National Committee would host the IPS Congress 2024. The EB also spent a long time for the three 'Peat for Food and Quality of Life' projects which are funded by the IPS, including an analysis of the peat demand forecast in China & worldwide, and the identification of horticultural peat resources on a global level. Similarly, IPS will update its 'Strategy for Responsible Peatland Management'. A new version of the Responsibly Produced Peat (RPP) scheme (version 2.0) is applicable since 1 March 2018. In 2017 the RPP-certificate was granted to 18 locations. In total there are 34 certified locations accounting for a little over 10.000 ha. For more information see www.responsiblyproducedpeat.org.

- https://bit.ly/2Jm0TxV

The International Stone Society has announced an inventory of future flint stone demand and flint stone resources.

Reidar Pettersson, Int. Peat Society president 1992-1996: "The Stone Age has not ended because of lack of stone. And similar it will be with peat."

New study finds mangroves may store way more carbon than we thought

A new study finds mangrove soil held around 6.4 Gigatons of carbon in 2000. Between 2000 and 2015, up to 122 million tons were released due to mangrove forest loss, more than 75 % from mangrove deforestation in Indonesia, Malaysia and Myanmar. Research indicates at least 35 % of the world's mangrove forests may have been lost between 1980 and 2000, mainly to make room for shrimp farms and other forms of aquaculture, as well as for their wood. Scientists also believe mangroves are at risk of mass drowning as global warming raises sea levels

- https://mongabay.us14.list-manage.com/track/click

Further reads and views:

- https://www.scientificamerican.com/article/greenlands-biggest-fire-is-a-warning-for-its-future/

Africa

Gorillas are far more numerous than previously thought, survey reveals

Leveraging the most comprehensive dataset ever compiled for western Central Africa, scientists have concluded that there are more gorillas and chimpanzees than previously estimated, but that most of them live outside protected parks and reserves. Samantha Strindberg and Fiona Maisels of the Wildlife Conservation Society (WCS) led a team of more than 50 researchers in pulling together wildlife survey data collected between 2003 and 2013 at 59 sites in five countries. Field researchers walked some 8,700 km to gather the information used in the study, covering an area of 192,000 km^2 (an area the size of France) between the Atlantic Ocean and the Congo and Ubangi rivers. They published their work on April 26 in the journal *Science Advances*. They found that more than 361,000 western lowland gorillas (*Gorilla gorilla gorilla*) and almost 129,000 central chimpanzees (*Pan troglodytes troglodytes*) inhabit these forests. "The boots on the ground research teams and partnerships are crucial to the success of these programs and the conservation of gorillas and chimpanzees," said study co-author Dave Morgan, a biologist with the Lincoln Park Zoo who leads the Goualougo Triangle Ape Project in the northern Republic of Congo. They then used the nest counts and data on important factors including the presence of people, roads and intact forest to produce a sophisticated statistical model, allowing them to fill in the gaps between the surveyed areas. The resulting total of 361,900 gorillas is far higher than the earlier estimates of 150,000 to 250,000. The researchers also assessed the population of the central chimpanzee sub-species, which lives in the same range and represents about a third of all chimps. Their population was 10-80% higher than thought.

The team's analysis demonstrates that, despite the sheer number of western lowland gorillas living in the region, that figure is slipping by 2.7 % a year. It's further evidence that the IUCN should continue to list this subspecies of gorillas as critically endangered. Prof Fiona Maisels. "Just because there are rather a lot of them does not mean they are not very, very vulnerable. Gorillas breed very slowly, with females taking 11-12 years to reach maturity and only giving birth every four years."

Gorillas are vital for the health of the entire forest, the scientists said, because they spread large seeds and their loss is disastrous in the long term. Prior research has shown that diseases, like Ebola, can decimate ape numbers by 90 % in specific area. Likewise, hunting remains a serious threat, even though international and national laws prohibit the killing of apes. "All great apes, whether in Africa or Asia, are threatened by poaching, especially for the bushmeat trade," WWF primatologist and co-author David Greer said in the WCS statement. But the study also showed that parks and timber concessions can reduce this threat substantially. "Our study found that apes could live in safety, and thus in higher numbers, at guarded sites than if there was no protection," Greer said.

The northern Republic of Congo is home to tens of thousands of apes as well as a timber industry that serves as an economic engine for the country. Gorilla numbers stay fairly steady in "well-managed" logging concessions, Maisels said, as research by Dave Morgan and his colleagues in the journal *Biological Conservation* has recently shown. That 80 % of the region's central and western lowland gorillas live outside protected areas makes good management of these concessions even more critical. Still, in an overarching strategy to protect these animals, "protected areas are the core because they can be maintained with more confidence in the very long term than other types of concession," Maisels said. "A combination of responsible industrial practices, conservation

policies, and a network of well-managed parks and corridors would provide wildlife managers with a winning formula for conserving great apes in Central Africa," Liz Williamson, a primatologist at the University of Stirling and a co-author of the paper, said in the statement from the WCS. "Our study has revealed that it is not too late to secure a future for gorillas and chimpanzees."

- https://news.mongabay.com/2018/04/more-gorillas-and-chimpanzees-living-in-central-africas-forests-than-thought/
- https://www.theguardian.com/environment/2018/apr/25/gorillas-more-numerous-than-thought-landmark-survey-endangered-species

Asia

Smallholder agriculture on peat, Central Kalimantan, Indonesia. Photo: Hans Joosten.

How much carbon dioxide is emitted from smallholders' farms on peatland?

The discussions on fires and haze issue caused by conversion of tropical peatlands to agricultural uses have mainly focused on large-scale plantations of oil palm and pulpwood. For smallholdings, there has been a lack of reliable data about emissions from peat. Smallholders' patchwork farms have less intensive drainage, usually dug by hand, than large-scale plantations that use heavy machinery to dig wider and deeper drainage canals. To learn more about emissions from smallholdings, Ni'matul Khasanah and Meine van Noordwijk led a team of scientists from the World Agroforestry Centre (ICRAF) Indonesia office who measured peat subsidence and changes in density and carbon content over 2.5 years in Tanjung Jabung Barat District, Jambi Province, Sumatra. Around 200,000 hectares or 40% of the district is peat from which the forests were cleared from the 1970s onwards, mainly for smallholdings of various tree crops. The team measured remnant logged-over forest and four dominant land-use types managed by smallholders that differed in time after drainage: 1) rubber agroforestry (more than 30 years); 2) mixed coconut and coffee (more than 40 years); 3) mixed betel nut and coffee (more than 20 years); and 4) a new oil-palm plantation (one year-old).

The team found that the recently established oil-palm plantation had the highest rate of peat subsidence, at 4.7 cm a year, emitting 121 tonnes of CO_2 a year. This was significantly lower than emissions from large-scale oil-palm and pulpwood plantations, at about 178 tonnes CO_2. Not surprisingly, the remnant forest had the lowest emissions but, probably owing to the modified drainage in the surrounding landscape, it still had a rate of subsidence of 1.8 cm, emitting 40 tonnes of CO_2 annually. The other land-use types subsided by 2–3 cm, emitting 70–85 tonnes of CO_2. These figures were higher than the default values (averages from various

documents) suggested by the Intergovernmental Panel on Climate Change: 51 tonnes for smallholdings, 55 tonnes for commercial plantations and 10 tonnes for disturbed secondary forests. The team also found that fertilizer application had a minimal effect on the rates of peat subsidence and emissions. Under fully controlled experimental conditions, fertilizer application had been shown to increase the decomposition rate. They concluded that much more specific attention should be given to smallholders managing peat if emissions were to be reduced. In particular, how smallholders managed water needed to be improved. Drainage was uncontrolled through open canals, which affected the adjacent remnant swamp forests, shifting them from carbon sinks to carbon sources. Effective solutions would require more detailed work with smallholders and the government agencies associated with peat management.

- http://blog.worldagroforestry.org/index.php/2018/04/30/how-much-carbon-dioxide-is-emitted-from-smallholders-farms-on-peatland/

Brunei

Brunei at the forefront of peatland conservation

There has been major progress in conservation and sustainable management of peatlands in Brunei Darussalam, thanks to the effective cooperation between government agencies, the private sector and local communities. This was stated by Martinah binti Haji Tamit, Acting Director at the Department of Environment, Parks and Recreation (JASTRe), Ministry of Development, at the third meeting of the Asean Task Force on Peatlands (ATFP) in Berakas on April 10, 2018. Martinah said the initiatives include, among others, total ceasing of logging operations in peat swamp forests from October last year, improved coordination mechanisms and approaches to control peatland fires and rehabilitation and restoration of peatland in the Badas peat swamp forest. “In Brunei Darussalam, peat swamp forest covers around 90,000 hectares which is about 16 % of the country’s total land area. It is estimated that 80 % of these peatlands are still relatively intact and covered with good quality of peat swamp forest,” Martinah said.

In Brunei’s pristine Menderan peatland: Rene Dommain climbing buttresses of Shorea albida *amidst of* Pandanus andersonii *palms. Photo: Hans Joosten.*

Delegations from Asean member states, Asean Secretariat, Global Environment Centre (GEC), European Union (EU), International Fund for Agricultural Development (IFAD), Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ) and the International Union for Conservation of Nature (IUCN) attended the meeting. The meeting discussed among others country updates by Asean member states on the status of implementation of national action plans on peatlands; regional initiatives to support the Asean Programme on Sustainable Management of Peatland Ecosystems (2014-2020 APSMPE); potential cooperation with dialogue/development partners; review of the implementation of Asean Peatland Management Strategy (APMS); and updates on the roadmap for Asean cooperation towards trans-boundary haze pollution control.
The 3rd ATFP meeting provided a platform for Asean member states to discuss and strengthen collaboration and cooperation towards successful development and implementation of Asean Peatland Management Strategy (APMS) to achieve its goals by the year 2020. The APMS is being developed within the framework of the Asean Peatland Management Initiative (APMI) and the Asean Agreement on Trans-boundary Haze Pollution, with the purpose to guide actions to support management of peatlands in the region during the period of 2006-2020.

- https://borneobulletin.com.bn/brunei-at-the-forefront-of-peatland-conservation/
- http://annx.asianews.network/content/brunei-forefront-peatland-conservation-70683

Indonesia

Rice cultivation in the Ex-Mega-Rice-Project area, Central Kalimantan. Photo: Hans Joosten.

Indonesian government wants to turn Mega Rice Project around

The Indonesian government plans to resurrect small tracts of the failed Mega Rice Project in Kalimantan by restoring abandoned peat areas and developing agriculture there. The plan was initiated by the nation's Peatland Restoration Agency (BRG), which was established in the wake of the 2015 fire and haze crisis. "A lot of it burned in 2015," BRG chief Nazir Foead said on the sidelines of a national gathering of peat farmers in Kiram village, South Kalimantan province at the end of April, referring to the former Mega Rice Project area. "So it's better to restore it while at the same time increasing its agricultural productivity."

The Mega Rice Project was initiated in 1996 by President Suharto, who aimed to turn Central Kalimantan province into the nation's rice bowl, at a time when paddy fields on the country's main central island of Java were widely being converted for other uses. To do that, the army general sought to carve out 1 million hectares of agricultural land from the peat swamps of Central Kalimantan. Thousands of excavators and tens of thousands of workers were deployed to clear peat forests and dig some 4,600 kilometers of drainage canals to keep the soil dry enough in the rainy season and the crops irrigated in the dry season. The megaproject was an unmitigated disaster, with not a single blade of productive rice ever grown. The nutrient-poor peat soil proved too unforgiving for Java-style rice cultivation. Jakarta ultimately abandoned it, leaving behind a dried-out wasteland that burns on a large scale almost every year.

"The lands are already cleared, and the canals have been built, but they are abandoned," Nazir said. "These areas have turned into bushes, and they often catch fire and become rat nests." To rewet the fire-prone wasteland, the Ministry of Public Works and Housing is blocking drainage canals in the area, focusing on the biggest canal in the network, in the district of Pulang Pisau. Meanwhile, the BRG has a project to establish agricultural areas where the land is prepared for planting without using fire. The first round of that project, done in cooperation with the Ministry of Agriculture, saw seven hectares in Pulang Pisau turned into rice paddies. Now the BRG wants to try 10 km^2. "Rather than keep abandoning them, it's better to revive the productivity of these areas," Nazir said.

- https://news.mongabay.com/2018/05/indonesian-government-wants-to-turn-haze-causing-mega-rice-project-around/

Major Malaysian financier singled out for deforestation in Indonesia

New research into the activities of a major Malaysian financial institution has raised questions over the efficacy of major brands' policies against buying from firms engaged in deforestation. In a recent report by climate coalition Chain Reaction Research, Lembaga Tabung Haji, whose publicly traded palm oil firm TH Plantations (THP) controls 32 estates in Indonesia and Malaysia spanning 1,600 km^2 was accused of actively clearing forest and peatland. The report presents evidence that THP had cleared hundreds of hectares of forest at its PT Persada Kencana Prima and Hydroflow Sdn Bhd plantations in 2017, in violation of some of its buyers' commitments not to source palm oil linked to the destruction of forests and peatlands or to the exploitation of workers — known collectively as "no deforestation, no peat, no exploitation," or NDPE, policies. The logging had already led to a suspension by palm oil giant IOI and engagement by Wilmar, it notes; moves that have managed to halt new deforestation at the sites.

THP also supplies other major brands, including AAK, ADM, Musim Mas, Olam, Nestlé and Unilever. But the report suggests that Lembaga Tabung Haji's PT Synergy Oil Nusantara (PT SON) is also an active "replacement" buyer for two firms that were suspended by other traders for NDPE violations, raising the prospect that companies could still suffer reputational risk if they buy palm oil from the Malaysian company. The Chain Reaction Research report singles out Felda Global Ventures (FGV), an agri-commodities company and joint-venture partner with THP, as being particularly at risk.

A Wilmar spokesperson said that many suppliers lacked the knowledge and resources to comply with sustainability requirements, adding that Wilmar had established supplier training and grievance procedures to address the issue. Bastien Sachet, CEO of The Forest Trust (TFT), a consultancy that works with Wilmar and other plantation giants, said that brands linked to "dirty" palm oil could do more to address the issue. "All companies with sustainability policies need to make them clear to all their suppliers. We … believe that cutting suppliers and producers out of supply chains, without thoroughly engaging them to change, doesn't solve problems. We've observed this many times over the years. Suspension is a tool, but it's not going to stop deforestation." TFT believes that only efforts to work directly with suppliers like TH Plantations can bring about positive change, while brands and producers both need to provide more evidence and third-party verification in their supply chains, including by using satellite verification tools like the Starling program, a TFT joint venture with Airbus and SarVision.

- https://news.mongabay.com/2018/05/major-islamic-financier-singled-out-for-deforestation-in-indonesia/

Palm oil supplier to food giants clears forest and peatland in Papua, Greenpeace says

The Yemen-based Hayel Saeed Anam Group, which sells palm oil to Mars, Nestlé, PepsiCo, and Unilever through subsidiaries, is responsible for clearing 40 km^2 of rainforest and peatland in Indonesia's Papua province between May 2015 and April 2017, according to Greenpeace's satellite-image analysis. "Companies like

Unilever and Nestlé claim to be industry leaders," forest campaigner Richard George of Greenpeace UK said in a statement. "So why are they still buying from forest destroyers like the HSA group? What are their customers supposed to think? What will it take to get them to act?" Unilever, Nestlé, PepsiCo and Mars have all committed to buy palm oil and other products that aren't tainted with the clearing of forests, the destruction of peatlands or the exploitation of workers. But two of these companies' suppliers, Arma International and Pacific Oils and Fats, are controlled by the Hayel Saeed Anam Group. PepsiCo, Mars and Unilever purchased palm oil from the Arma International, according to lists of suppliers released by the food producers. And Nestlé said that it bought palm oil from Pacific Oils and Fats. Greenpeace published a report in March questioning whether these and other high-profile companies that have made no-deforestation pledges are actually on track to meet that goal by 2020. "Brands need to ensure their supply chains are free from deforestation and the only way to do this is to proactively monitor and enforce their no deforestation standards," Diana Ruiz, a palm oil campaigner with Greenpeace USA, said.

- https://news.mongabay.com/2018/04/palm-oil-supplier-to-food-giants-clears-forest-peatland-in-indonesia-greenpeace-says/

Greenpeace ends engagement with Sinar Mas because of deforestation

Recent findings of deforestation by two companies with ties to the Sinar Mas Group and its pulp and paper arm, Asia Pulp & Paper (APP), have led Greenpeace to end its engagement with the Indonesian conglomerate. According to a new mapping analysis by Greenpeace, 80 km^2 of forests and peatlands has been cleared since 2013 in two concessions that are linked to the paper giant. Greenpeace said this finding had put APP's commitment to end deforestation in jeopardy. "The group failed to provide a credible response or to take meaningful action," the NGO said in a statement. "As a result, Greenpeace has ended all further engagement with APP/Sinar Mas." APP denied the allegations and said it regrets Greenpeace's decision, saying that it might actually harm the company's progress in implementing its zero-deforestation policy. APP and Greenpeace have had a tumultuous relationship, with both locking horns for two decades over the company's vast clearance of rainforest and peatland on the island of Sumatra. In 2013, APP under pressure from Greenpeace and other NGOs, pledged to stop clearing forests and peatlands. The policy also committed to resolving conflicts over land with local communities. The policy promised a major shift for Indonesia's forestry sector, so much so that it turned Greenpeace from APP's adversary into its ally, with the NGO suspending its campaign against the paper giant which had cost the company tens of millions of dollars in lost business. Greenpeace was also instrumental in drafting the policy, and has since been involved in monitoring its implementation. "Greenpeace has been an integral partner in our sustainability journey since 2013, and their engagement and support has resulted in much progress in the fight against deforestation in Indonesia," APP said.

Greenpeace told Mongabay it first detected irregularities in APP's businesses in late 2017, when an investigation by the Associated Press uncovered ownership ties between APP and more than two dozen plantation companies the paper giant had previously claimed were "independent" suppliers. Many of the companies were linked to devastating fires and deforestation in Indonesia. Greenpeace then launched its own investigation, confirming the Associated Press' finding that APP had undeclared connections to a number of other pulpwood companies, with some of these companies owned by employees of Sinar Mas Group companies. At least two of these companies were discovered to be committing large-scale deforestation in Kalimantan after APP promised to stop clearing forest. The first company is PT Muara Sungai Landak, which has cleared nearly 30 km^2 of forests and peatland in its pulpwood concession in West Kalimantan. According to Greenpeace's finding, the company is owned by Justinus Indrayanto and Hendy Lie, two employees of Sinar Mas Forestry, whom Greenpeace identified as APP's sister company, through a network of holding companies. "We sent our own team to investigate the matter and indeed, we found deforestation there," Kiki Taufik, head of Greenpeace's Indonesia forest campaign, told Mongabay. "We're told that the employees weren't from APP, but from Sinar Mas Forestry. But, we can't accept that because we believe the whole Sinar Mas Group has to implement this [zero-deforestation] policy."

The second company is PT Hutan Rindang Banua, which is owned by a Sinar Mas-branded mining company, Golden Energy and Resource (GEAR). Kiki said PT Hutan Rindang Banua had cleared nearly 50 km^2 of forest from its 2,650 km^2 of pulpwood concession in South Kalimantan since 2013. "At first, we didn't know that Sinar Mas Group owned the PT Hutan Rindang Banua's concession," he said. "But after the investigative report from Associated Press was published, we tried to launch another investigation and found this. That's what made us not be able to continue [the relationship with APP]."

According to APP, the land area of 80 km^2 mentioned by Greenpeace refers to concessions not owned by the company itself, and which it has no jurisdiction over. Furthermore, APP said it didn't purchase wood from these concessions. APP said that after the Associated Press article came out, it launched its own investigation and found that three of PT Muara Sungai Landak's shareholders, not two as stated in the article and in Greenpeace's statement, had relationships with APP. Two were ex-employees of APP who left the company in October 2015 and November 2015 and one was a current employee who had not declared his shareholdings and position within PT Muara Sungai Landak. "This constituted a violation of APP's Code of Conduct as it presented a direct conflict of interest," APP said. "The employee was terminated with immediate effect." APP also corrected Greenpeace's statement on the status of Sinar Mas Forestry as APP's sister company, saying that it's actually a division within APP.

Kiki said the problem was that former employees of APP owned a company linked to deforestation. "APP should've done something before there's an investigation from a third party. If they are truly committed, then they should've disclosed the fact from the very beginning and they should've detected the link."

Despite the allegations, Kiki said APP still had to be recognized for making substantial progress in its zero-deforestation policy. APP claimed that it had identified and protected more than 6,000 km^2 through the implementation of High Carbon Stock Approach and High Conservation Value studies within its concessions and those of its third-party suppliers. Kiki also applauded APP's program to dam drainage canals in peatlands.

"We have to admit that there's been some progress made in that area," he said.

- https://news.mongabay.com/2018/05/greenpeace-disowns-paper-giant-over-deforestation-allegations/

Dam construction in APP acacia plantation in Jambi, Sumatra. Photo: Hans Joosten.

Palm oil diplomacy

Li Keqiang, the current Chinese Premier of the State Council ('Prime Minister'), recently concluded a visit with Indonesian President Joko "Jokowi" Widodo, from 6-8 May, in which the leaders discussed trade and investment, focussing particularly on introducing more Indonesian agricultural goods to the Chinese market. During the visit, Li expressed interest in increasing China's palm oil imports from Indonesia by at least 500,000 tonnes (worth approximately $530 million), a sizeable increase from the 2.6 million tonnes of Indonesian palm oil exported to China in 2017. Earlier this year, European lawmakers approved a number of draft measures to meet climate goals, which included a ban on the use of palm oil in biofuels. The EU's strong stance against palm oil is a concern for Indonesia as Europe makes up approximately fifteen per cent of its export market.

As mentioned in a previous Strategic Weekly Analysis, if the EU eventually regulates its palm oil intake, Jakarta will have to rely on other markets, such as China. It is unlikely that the Indonesian government will be able to satisfy EU standards, as only a small number of palm oil plantations in the country currently adhere to its own national standards (Indonesian Sustainable Palm Oil Foundation, or ISPO) which are less stringent than the main international certification standard (Roundtable on Sustainable Palm Oil, RSPO). The EU Parliament has also openly criticised both of these standards for failing to limit greenhouse gas emissions and prevent forest and peatland fires; meaning that its own regulations are likely to be much stricter. Expanding into more receptive, less regulated, markets will be the best course of action for the Indonesian palm oil industry, although its non-conformance to EU standards may further damage the reputation of South-East Asian palm oil in the global market in the longer-term.

- http://www.futuredirections.org.au/publication/palm-oil-diplomacy/

Young oil palm plantation on peat in Sumatra. Photo: Hans Joosten.

Typo derails landmark ruling against Indonesian palm oil firm guilty of burning peatland

A landmark Indonesian case that saw an oil palm company fined millions of dollars for burning carbon-rich peatlands has effectively been derailed by a district court on the basis of a simple typo. PT Kallista Alam was in 2015 found guilty by the Meulaboh District Court in Aceh province of using fire to clear 10 km^2 in the Tripa peat swamp on the northwest coast of Sumatra. The company pursued a series of appeals all the way up to the Supreme Court, which upheld the initial ruling and ordered the company to pay an unprecedented 366 billion rupiah, about $26.5 million at the time, in fines and reparations. Its final ruling came in April 2017, at which point the company should have exhausted all avenues of appeal. Later that same year, however, the same district court that had convicted the company approved its petition for legal protection.

PT Kallista Alam subsequently filed suit against the government, arguing that the coordinates for its concession as submitted by the Ministry of Environment and Forestry in the original prosecution were wrong. In April this year, the Meulaboh District Court ruled in favor of PT Kallista Alam, effectively shielding it from the Supreme Court-ordered fines on the basis of a typo in the original complaint. “The plaintiff, PT Kallista Alam, cannot be made to be legally responsible with regard to the Supreme Court’s verdict,” the court said in its April 12 ruling.

The ruling has shocked observers, who had previously welcomed the district court’s 2015 ruling as a landmark decision in the judicial fight against environmental crimes. “PT Kallista Alam was found guilty of breaching administrative, criminal and civil law in a series of legal prosecutions [up to] our country’s highest courts,” Farwiza Farhan, chairwoman of the NGO Forest, Nature and Environment Aceh (HAkA), said in a statement.

"For a district court to now undermine the ruling of Indonesia's Supreme Court is a shocking twist of events." Activists say they are worried that if the new ruling goes unchallenged, PT Kallista Alam may never pay the fine, and there will be no funds for the restoration of the destroyed area in Tripa, deemed to be critical for the future of the critically endangered Sumatran orangutan (*Pongo abelii*).

Tripa once harbored some 3,000 orangutans in its peat forests, making it one of the most important orangutan habitats in the world, according to Ian Singleton, director of the nonprofit Sumatran Orangutan Conservation Programme (SOCP). "Today we are lucky if there are still more than 100 survivors of its destruction for palm oil," Singleton said in a statement.

While the district court's ruling hinges on a typo in the original complaint, the new verdict suffers from the same problem — and to an even greater degree. The ruling, for example, misstates the year of the Supreme Court ruling in the case number, citing it as 1/PK/PDT/2015. That ruling pertains to a separate dispute between two other oil palm companies. The actual Supreme Court ruling against PT Kallista Alam is case number 1/PK/PDT/2017. "That means that the Meulaboh District Court's verdict doesn't annul the writ of execution against PT Kallista Alam, because 1/PK/PDT/2015 is for another case," a coalition of 14 NGOs said in a statement.

Forest clearing and burning still occur on PT Kallista Alam's concessions in Tripa, according to the SOCP. There were 4,069 hectares of new primary forest loss in Tripa between 2013 and 2017. Of that figure, 60 hectares were in concessions held by PT Kallista Alam. Similarly, the VIRS satellite fire detection service identified 2,654 fire hotspots in Tripa, 193 of them in PT Kallista Alam's concessions. "These observations clearly demonstrate that whilst the legal cases were ongoing and long after fines and prison terms had been meted out, PT Kallista Alam continued to show little or no regard for Indonesia's National Law," Matthew Nowak, director of the SOCP's biodiversity monitoring unit, said in a statement.

The government has lodged an appeal on April 25 against the Meulaboh District Court's ruling. "We'll try to convince the judges about the original prosecution," Jasmin Ragil Utomo, the civil law enforcement director at the Ministry of Environment and Forestry, told Mongabay. "Let's say our coordinates were wrong, but our prosecution wasn't about the coordinates. It was about the concession owned by PT Kallista Alam." Jasmin said the company's legal stonewalling since 2015 had left the ministry unable to collect the fines needed to restore the critical peat ecosystem. The ministry has petitioned the Supreme Court to annul the legal protection granted by the district court last year to the company, Jasmin said. Meanwhile, activists have called on law enforcement agencies to investigate the district court judges who ruled in favor of PT Kallista Alam, slamming their verdict as a clear defiance of the law. "Many are now questioning the motives of the judges in this case, and calling for an investigation into the decision," HAkA's Farwiza said.

The Indonesian Center for Environmental Law (ICEL) went a step further, demanding the dismissal of the head of the three-member panel of judges, Said Hasan. "To uphold the integrity of the court system, ICEL asks the Supreme Court to immediately investigate the panel of judges in this case to see whether there are indications of breaches of the code of conduct," the group said in a statement. "And to dismiss and replace [Said Hasan] because he has proven to be hampering with the execution of the [Supreme Court ruling]."

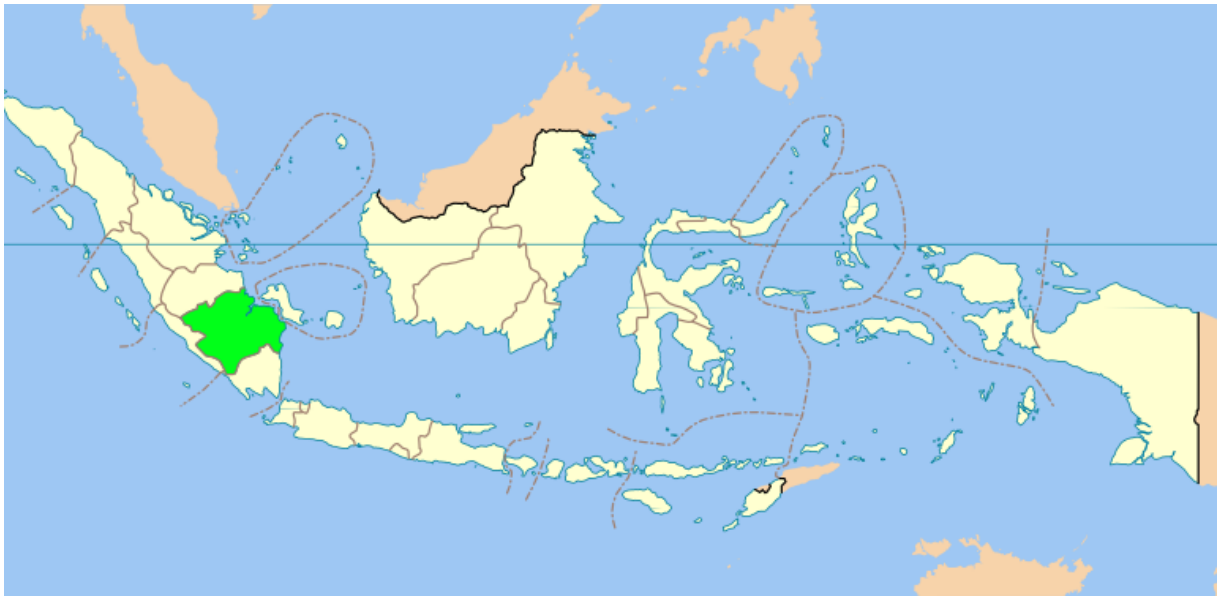
- https://news.mongabay.com/2018/05/rogue-palm-oil-companys-legal-victory-in-a-peat-fire-case-deals-a-blow-to-environmental-law-enforcement/

Indonesia enlists plantation companies to ensure haze-free Asian Games

The well-being of tens of thousands of athletes and spectators at Asia's biggest sporting event later this year will depend on an unusual pair: palm oil and pulpwood companies. These industries dominate the landscape around the city of Palembang in South Sumatra province in Indonesia, which is co-hosting, along with Jakarta, the Asian Games this August. The event is the biggest on the Asian sporting calendar, with some 15,000 athletes from 45 countries expected to take part, drawing hundreds of thousands of visitors from across the continent. But organizers are wary of the danger of toxic haze from the burning of brush and peatlands, a phenomenon that flares up across palm oil and pulpwood concessions throughout Sumatra and Indonesian Borneo annually. The dry season this year, which is when the fires peak, is expected to take hold from June through September, coinciding with the Asian Games.

South Sumatra is home to many pulpwood and oil palm concessions, with Asia Pulp and Paper (APP) having a particularly large presence there. The province was the hardest hit by the particularly severe fires of 2015, when 3,591 km^2 of land was raze. The haze that year was exacerbated by the burning of degraded peatland that had been drained to make way for pulpwood and oil palm plantations and rendered highly combustible.

The combination of drained peat forests and a dry climate, effectively turning the province into a tinderbox, has many concerned that the Games will be hit by haze. Among them is President Joko "Jokowi" Widodo, who has warned of disruptions from the haze and reputational damage to Indonesia during the high-profile sports event. "Don't let this event be marred by haze and forest fires that will hurt [our] image and disrupt flights," he said in February at a meeting of ministers and other top officials tasked with preventing land fires. "We have to work hard so that the Asian Games run smoothly without any problems from forest fires." Ensuring a haze-free Asian Games, authorities say, will depend heavily on the companies operating in South Sumatra.



A map of South Sumatra province in Indonesia. Source: Wikimedia Commons.

Nineteen pulpwood companies operate in South Sumatra, according to 2015 government data, managing a combined 13,000 km^2 of concessions. Many of these concessions overlap or border with eight of 14 villages in South Sumatra that the Peatland Restoration Agency (BRG) has described as being prone to fires. The proximity of these concessions to the fire-prone villages makes "the role of the pulpwood companies very big," said Budi S. Wardhana, the deputy for planning at the BRG, on the sidelines of a recent national gathering of peatland farmers in Kiram village, South Kalimantan province. He said it was important for these villages to have drilled wells that residents could use to draw water quickly to extinguish small pockets of fires before they spread out of control. To that end, the BRG is working with the national geological agency to locate groundwater reservoirs in the 14 villages. Budi said the wells needed to tap reservoirs and not the water from peat swamps, which would drain the swamps and render them susceptible to burning. "And it has also been agreed that the water will not be used to irrigate crops, but to rewet peatlands and for first response [to fires]," he said. The BRG already had long-term plans in place for peat restoration in the 14 villages in South Sumatra, but has had to push them forward because of the Asian Games. It expects the restoration to be completed by June, Budi said.

The agency has also met with the pulpwood and palm oil business associations, APHI and GAPKI, respectively, to ensure the companies understand what is at stake and to impress on them the urgency of restoring those parts of their concessions that are prone to fire. BRG head Nazir Foead told the companies they had a responsibility to prevent peat fires and to restore degraded peatland within their concessions. Many of these concessions include areas of deep peat that contain high biodiversity. Under Jokowi's signature anti-haze regulation, these areas must be zoned for conservation and rewetted to prevent fires. These areas are part of a total 24,000 km^2. Degraded peatlands that fall within existing plantation concessions account for 78 % of the 6,160 km^2 of degraded peat that must be restored across South Sumatra. This eases the BRG's workload by putting the obligation on the concession holders, Nazir said. "Many of our restoration areas in South Sumatra fall within concessions. In those cases, we can just order them [to restore the peat areas]," he said.

To date, 88 palm oil and 34 pulpwood companies have had their peat restoration plans approved, according to the Ministry of Environment and Forestry. Some have already started the restoration work. "Even before they submitted their plans, some of them had restored their pulp concessions and plantations," said Karliansyah, the ministry's head of environmental pollution and damage control. He said the companies had restored a combined 10,000 km^2 of degraded peatlands nationwide since 2015, mostly by blocking the canals initially dug

to drain the peat in preparation for planting. In addition to restoring peatlands, some companies have rolled out other fire-prevention programs. This includes APP's Fire-Aware Village program, in which the company helps villagers adopt agroforestry as part of wider measures to mitigate fires and encroachment into forests around the company's concessions. Specifically in preparation for the Asian Games, APP said it planned to intensity its fire-prevention program, which will run from May through October this year, with a total investment of $3.8 million. APP fire data and IT manager Gustaf Rantung said the program included more detailed mapping on fire-prone areas and adding patrol towers to monitor areas up to a radius of 10 km. APP plans to add five patrol towers in Ogan Komering Ilir district, and eight towers each in Banyuasin and Musi Banyuasin districts, all in South Sumatra province. For areas with less dense vegetation, APP will build 25 smaller towers to replace land patrols, which Gustaf said were not as effective for detecting fire spots.

BRG's Budi said it made business sense for companies to prevent fires on their concessions. "It's related to their own survival as well because they want to plant acacia trees," he said. "If there are fires, they can't harvest the trees." He called on the companies to go a step further by helping drill wells for the fire-prone villages as a first line of defense. "These wells can be quite costly as they can go more than 80 meters deep," he said. "The cost can reach hundreds of millions of rupiahs," or thousands of dollars.

- https://news.mongabay.com/2018/05/indonesia-enlists-plantation-companies-to-ensure-haze-free-asian-games/

View from a small watchtower in an oil palm plantation in South Sumatra. Photo: Hans Joosten.

Iran

Miankaleh peninsula faces serious risk of disappearing

Miankaleh peninsula in Iran, one of the richest ecological havens in West Asia is seriously threatened as unsustainable development and conversion continue to pose major threats to its wetlands. Located in the northern province of Mazandaran, Miankaleh peninsula is a long but narrow peninsula (48 km long, 1.3 -3.2 km wide) in the extreme south-eastern part of the Caspian Sea. It sets apart the Gorgan Bay from the Caspian Sea. Hossein Ali Ebrahimi, head of Mazandaran province department of department, has said that almost 20 % of the peninsula's wetlands have dried up. Drought spell and climate change are two of the key factors contributing to the Miankaleh peninsula dryness. The province of Mazandaran has been negatively affected by climate change and less precipitation has increased the peninsula water deficits. However, mismanagement,

unsustainable agricultural practices, and severe depletion of the wells and groundwater resources have exacerbated Miankaleh peninsula's condition.

Since the province used to be blessed with above normal annual precipitation, numerous dams have been built in the region which has given rise to the peninsula's disappearance, Ebrahimi highlighted. He further explained that some 60 million m^3 of water is being used in the industry sector in the province and 80 % of the water goes into irrigation.

Miankaleh was designated a Ramsar site in 1975. Major habitats include wetlands, inter-tidal mud with sandy shores, shallow marine waters, forests, peatlands and agricultural areas. Local people earn their income from agriculture, horticulture, animal husbandry, handicrafts, carpet weaving, traditional poultry farming and tourism. Overgrazing, illegal hunting, fishing, deforestation and the unplanned spread of villages are some of the challenges posing threat to the region's environment.

- http://www.tehrantimes.com/news/423394/Miankaleh-peninsula-faces-serious-risk-of-disappearing

Northern Iran is rich in peatlands, which often have developed in a lagoon setting. Here Elias Ramezani presents a peat core from the immediate surroundings of the city of Ramsar. Photo: Hans Joosten.

Malaysia

FGV enhances sustainability policy

Felda Global Ventures Holdings Bhd (FGV) is enhancing its 'No Deforestation, No Peat and No Exploitation (NDPE)' Policy as a commitment to sustainable development. "The company takes the group's sustainability efforts seriously to fulfil the needs of all stakeholders, including the environment, the workers, businesses and the local community," CEO Datuk Zakaria Arshad said in a statement from 09 April 2018. It said with the NDPE Policy it aimed to restore all of its developed peatland in line with its 2017 Sustainability Policy, without causing social conflict. FGV said it has adopted the high-carbon stock approach in current areas of potential development and took into consideration the environmental and social aspects in determining suitable areas for new development.

- http://www.malaysiandigest.com/business/732242-fgv-enhances-group-sustainability-policy.html

Australasia

New Zealand

National Wetland Trust activities update

Bev Clarkson (clarksonb@landcareresearch.co.nz)

The autumn 2018 edition of the NZ National Wetland Trust newsletter is now available on-line: Wet & Wild 48. It covers several recent activities including a successful BioBlitz held at the Lake Rotopiko peat lake and adjacent mire. A BioBlitz is a public science event: scientists, helped by the public, collect and identify as many different species of flora, fauna and fungi as they can within a limited time frame. At Rotopiko, the search area was confined to the 8 ha within a predator-proof fence, which yielded a total of 612 species over two days. The list comprised 193 plant, 52 fungal, 11 bacteria, 28 spider, 12 earthworm, 54 moth, 191 other insect, 26 bird, 1 reptile, 1 amphibian, 42 nematode, and 1 mammal species (*Homo sapiens*). Highlights also included expert tree climbers who streamed footage of the epiphytes in swamp forest from a helmet-mounted GoPro camera, drone and video footage, peat coring, and a live radio show. The newsletter also features the Trust's two new interns from France and Germany, who will be progressing ecological monitoring and the re-introduction of threatened fauna at the Rotopiko site. Working with students or graduates from across the world is extremely beneficial, allowing the Trust to gain an insight into international approaches to wetland conservation, and fresh new ideas.

School children being briefed at the Rotopiko BioBlitz before exploring the site. Photo: Bev Clarkson.

Europe

European Union

EU Climate Action

The European parliament has adopted two ambitious climate laws: The Effort Sharing Regulation cutting emissions from sectors representing nearly 60% of emissions and #LULUCF including for the first time emissions and removals from land use, land use change & forestry. The next round of inter-institutional talks on the renewable energy file are scheduled for May 17.

- http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//TEXT+TA+P8-TA-2018-0096+0+DOC+XML+V0//EN

Iceland

Discussing peatland emission research in Iceland. Photo: Hans Joosten

Earlier we informed you on the upcoming conference of the European branch of the Society of Ecological Restoration (SER) in Iceland 9-13 September 2018 (https://sere2018.org/). The main theme is Restoration in the Era of Climate Change and addresses a variety of issues, including safeguarding of biodiversity, combating land degradation and desertification, and mitigation of climate change.

Iceland was and still is draining a large area of peatlands for agriculture. Nevertheless, peatland restoration was integrated into Iceland's national policy and included in the National Determined Contribution (NDC) of the country as input to the implementation of the Paris Climate Agreement. Currently two peatland related symposia are confirmed and included in the Conference agenda: # 7 –"Peatland restoration in the climate change era" and #19 – "Challenges of peatland restoration". Hans Joosten is invited as key note speaker on peatlands in the plenary. A special post conference peatland event is under discussion and scheduled preliminary on Friday, September 14th. The registration to the conference is still open.

Ireland

IPCC highlights endangered Curlew

In the weekend of 21-22 April, the Irish Peatland Conservation Council (IPCC) hosted an event at the Bog of Allen Nature Centre (Kildare) to highlight the decline of endangered Curlew breeding on Irish bogs.as part of World Curlew Day (April 21st). World Curlew Day is used to raise awareness for the eight known Curlew species worldwide, two of which are now believed to be extinct. Three other species are on the IUCN Red-list of Threatened Species, including the Eurasian Curlew, which breeds in Ireland. Peatlands are extremely important habitats for Curlew, with an estimated 71% of Curlew breeding on bogs and 29% breeding mainly on rushy pasture and wet grassland. A survey undertaken in 2015-2016 recorded less than 150 pairs breeding in the Republic of Ireland. A Curlew Task Force was set up in January 2017 made up of stakeholder groups and experts in Curlew conservation. Ireland's breeding Curlew have seen a 97% decline since the 1980's largely as a result of habitat loss from forestry, farmland activities and commercial peat extraction. Predation by foxes and crows, who thrive in these modified and fragmented landscapes, make it almost impossible for Curlew to rear young

chicks, the IPCC said. “If no action is taken to help save these iconic birds from extinction and the Curlew continues to decline at its present rate, experts predict that breeding Curlew will be lost within 5 to 10 years,” IPCC Conservation Officer Katie Geraghty said.

Citizens’ Assembly report on climate change released

The Citizens’ Assembly’s report on How the State can make Ireland a leader in tackling climate change was published on April 18th and includes 13 recommendations. Key recommendations include calls for the establishment of a carbon price signal for agricultural emissions, the phasing out of peat subsidies and increased spending on sustainable public transport. Stop Climate Chaos, a coalition of civil society NGOs, said that the Government must “respect the mandate” of the Assembly. Coalition Spokesperson, Oisin Coghlan, called for the immediate formation of a dedicated Oireachtas Committee to show that the Government takes the recommendations “as seriously as it took its report on the Eight Amendment”.

The proposed agricultural carbon price signal could come in the form of a tax on excessive emissions or a subsidy to reward farmers who move to sequester additional carbon on their land.

Echoing the call from the Chair of the Climate Change Advisory Council Professor John Fitzgerald during the final session of the Assembly in November 2017, the Assembly recommended an end to the peat subsidy on a five-year phased basis. Assembly members want the Government to instead use this money for peatland restoration and retraining industry workers in the transition away from peat extraction.

During the first weekend of deliberations, EPA Director, Laura Burke said that peat extraction is a “triple negative hit” as extraction and burning releases carbon, while also diminishing our “largest store of carbon”.

- https://greennews.ie/icitizens-assembly-climate-change-released-today/

'Rangers and gardaí chased us off the bog' - turf cutters on tenterhooks ahead of possible ban

April 22 2018 6:00 AM

Every summer, there is a stand-off between bog conservationists upset by the extinction of a very unique ecosystem and turf cutters defending their turbary rights and traditions. As another turf-cutting season approaches, tests are being carried out in North Kerry's Moanveanlagh Bog to resolve the issues there. Moanveanlagh, close to the town of Listowel, has been designated a Special Area of Conservation (SAC) site. Last March, local cutters met with Heritage Minister Josepha Madigan on the future of turf cutting in their bog.

"Sure the amount we're cutting is only like a daisy in a bull's mouth,” Mick Looney (82) says. “People have been cutting turf in Moanveanlagh for hundreds of years and the bog hasn't been destroyed. Turf cutting can exist hand-in-hand with the environment. There won't be any heritage to be maintained here anyway if the turf-cutting ban doesn't change. Back when I was a young lad, there was nine houses on my road. Now there are only two. It's the same story in all the parishes around us. That's what the Heritage Department is doing for us."

Surveys were carried out by the National Parks and Wildlife Service in the late 1990s, and 139 of our 1,500-plus raised bogs were designated as Special Areas of Conservation (SACs) or Natural Heritage Areas (NHAs). The bog owners were told that from 2008 they would no longer be allowed cut the turf on their land.

Mick's ancestors have been returning to the bog in Moanveanlagh since 1911. "I remember going to school 70 years ago and I used to meet 24 men coming down different fields on our way to school. They'd be saving and drawing turf. It kept them going. "Then the machine came and in a week it'd cut turf for everyone. It wasn't doing damage to anyone. We were cutting away until, out of the blue, an ad appeared in the Kerryman newspaper on December 19, 2002 saying that turf cutting in Moanveanlagh Bog was to stop. We'd a few meetings with the IFA and with Duchas (who were in charge of it at the time). The outcome of all this was that people that wanted to cut turf for themselves could continue and people who wanted to take compensation could take it." Compensation was €500 a year or €15,000 if you wanted to sell your rights outright. "Some people took compensation but I didn't on principle. I didn't trust the people we were dealing with."

In late December 2012, another notice appeared in the Kerryman that turf cutting was to cease. "We started to cut turf anyway in 2012 in breach of everything. Wildlife service rangers and gardaí raided the bog and chased us turf cutters across the bog." "The experts in early days said Moanveanlagh was only selected because it is in pristine condition. And we've been cutting it since 1911 without damaging it. I don't see where there's any environmental damage. In the last few years it's become a wilderness, all the boreens leading in to the bog are overgrown."

In 2011, the European Commission issued a Reasoned Opinion - basically, a final warning - to Ireland to enforce the ban and warned that the state that it would face fines of up to €25,000 per day if turf cutting on the

designated bogs didn't stop immediately. Cutters mobilised around the country; a few defied the ban and cut their bogs as usual.

Late last year, Minister Madigan published a new conservation management plan to cover the next five years. It includes plans to start restoration work on a number of bogs across the country and commits to further work relocating turf cutters to non-designated bogs. "The cessation of turf cutting necessary for the protection of our designated raised bogs has had an impact on people's lives," she says. "This plan strikes an appropriate balance between Ireland's legal obligation to protect certain raised bogs and the needs of turf cutters, landowners and other stakeholders within these sites."

The plan outlines that, where domestic turf cutting has had to cease, financial compensation is being provided and feasible alternatives have been and are being sought. The Department of Culture, Heritage and the Gaeltacht has so far provided in the region of €28.7m in compensation to those impacted by turf-cutting bans on protected raised bogs and is working to relocate turf cutters to suitable non-designated bogs. It appears to be a workable compromise, at least for the cutters.

However, conservationists are still adamant turf cutting has to end. Full stop. Their point is that the value of our boglands goes beyond them being important wildlife habitats, they also function as carbon sinks. Friends of the Irish Environment, a group that has been extremely vigilant in campaigning for peatland protection, says bogs are vital for offsetting carbon emissions. Tony Lowes, one of the directors of Friends of the Irish Environment, says that turf's day has long passed. "Turf cutting and environmental concerns cannot co-exist," he says. "No one knew this when turf cutting was an annual rural event. It is now settled science that draining wetlands - including bogs - contributes to increased global warming, pollutes our waterways, and when burnt is many times more polluting than even coal - with public health implications. The public good must outweigh even long-held rights."

The Green Party's spokesperson for rural affairs, Malcolm Noonan, says that Government needs to ramp up funding to the National Parks and Wildlife Service to offer more protection to the 53 raised bog sites, and to fund local authority biodiversity to promote greater awareness within the community of the importance of these unique habitats. "We think that there is an opportunity for a 'just transition' to take place here, where turf cutters could not just be compensated but rewarded and indeed employed on interpretative sites and in restoration projects," he says. "Turf cutting is over; it's no longer viable nor feasible in a state that is already way behind on meeting our legally binding climate commitments. Offering alternative rural enterprise and employment based around the bog habitats is a positive way forward for all concerned."

- https://www.independent.ie/business/farming/rural-life/rangers-and-garda-chased-us-off-the-bog-turf-cutters-on-tenterhooks-ahead-of-possible-ban-36824785.html

Netherlands

Province of North-Holland starts programma against subsidence in peat meadow areas

In peat meadow areas in the Netherlands, ditch levels are kept low to allow farmers to work their land, to stimulate grass growth and to prevent soil damage by cattle. The low water levels, however, oxidize the peat and make the soil surface subside. The province of North-Holland is now initiating a program to reduce and stop subsidence and where possible reverse it and has made an extra 1 million euro available for the Innovation Programme Peat.

Het Planbureau voor de Leefomgeving (www.pbl.nl) expects the soil surface of the North-Holland peat meadows will lower with 27 cm over the period 2010-2050. While simultaneously sea level is rising North-Holland will become more vulnerable to flooding and salt water intrusion Furthermore the peatlands in the Netherlands are responsible for 2% of the national CO_2 emissions.

- https://www.groeneruimte.nl/nieuws/artikel.html?id=201939

Members of the North-Holland government and parliament on paludiculture orientation visit in Germany, April 2018. Photo: Hans Joosten.

Russian Federation

Workshop on prospects for sustainable development of peat industry in Russia 17-19 September, 2018

A international workshop on "Problems of and prospects for sustainable development of peat industry in Russia" will take place in Tver (Russia) from 17 to 19 September, 2018, on the premises of the Tver State Technical University. The workshop is particularly intended for representatives of domestic and international peat extraction and processing enterprises; manufacturers of technological equipment; research, nature conservation, and education institutions of the Russian Federation and other countries involved in peatland research, conservation, and economic use. The workshop aims to analyze the current state of affairs in the domestic peat industry (multi-faceted use of peatlands, including conservation and restoration, education, and legislation) and to assess primary areas of peatland resource use in Russia. The workshop will also discuss perspectives for peatland resource management, including commercial use of ecosystem services. The workshop (working languages Russian and English) will address

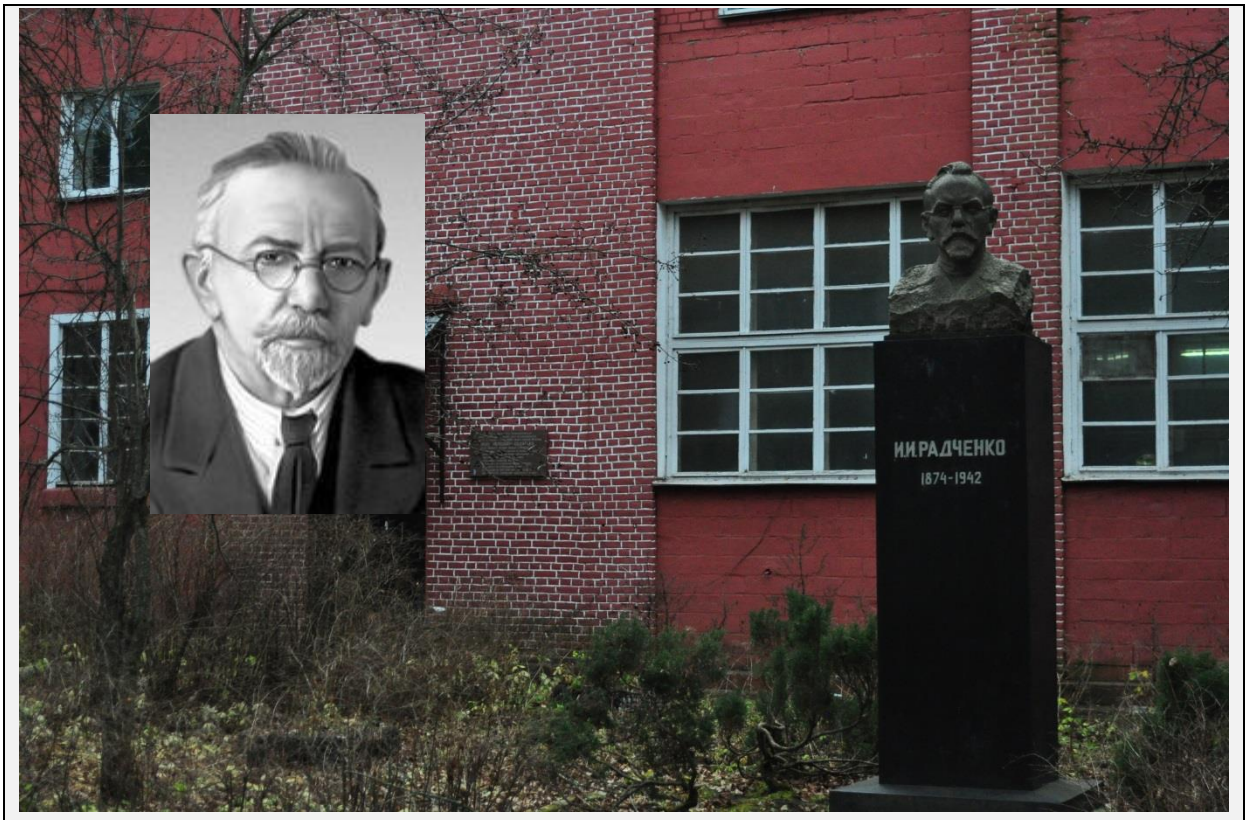
- Strategic planning in business: economics and legal fundamentals
- Study and management of natural and disturbed peatlands, including their biological, organic, and organic-mineral resources
- Methods and technologies of peatland management: extraction and processing of raw materials, ecosystem services, and restoration of ecosystems
- Training and international mobility of experts.

The conference is co-funded by the International Climate Initiative project “Restoring peatlands of Russia for fire prevention and climate change mitigation“, implemented by Wetlands International in partnership with the Michael Succow Foundation (Germany), Greifswald University (Germany), the Russian Academy of Sciences and the Russian Government. It will be followed by a workshop on paludiculture with visits to experimental sites for reed production and peatland restoration. Attendant forms and abstracts for publication should be submitted before 1 June, 2018. Guidelines for submitting manuscripts are given on the website of the East Europe's Institute of Peat www.instorf.ru. Contributions should be submitted as attached files named according to the first author's surname to owpuhova@mail.ru.

Workshop participants will be accommodated in the hotels "Volga" (http://volga-tver.ru), "Oktyabrskaya" (http://oktoberhotel.ru), and "Tsentralnaya" (http://centraltver.ru) in Tver. Please book rooms and take care of your visa in advance.

ATTENDANCE FORM

Surname, name (formal name)
Name of present employer, position held
Academic degree, academic title
Office address
Office phone (or home phone) with area code, mobile
e-mail
Contribution title
Form of participation in the workshop (on-site or remote)
Participation in the excursion



Statue of Ivan Ivanovich Radchenko in front of his office in Tver. Radchenko, since 1895 a professional revolutionary, was since 1917 the leading man of the Russian peat industry. From his memoires: "[Lenin] expressed his satisfaction about the fact that I worked for peat and know this case. Vladimir Ilyich noted the importance of peat as a fuel type that is more affordable under these circumstances than distant Donbas coal and Bakuthe oil. … On my question if I could be more useful for the revolution in any other work, he strongly urged me to stay at work on the organization of peat, because I was one of the few Soviet experts in this field." Also his personal connections to Lenin were excellent, because his wife Alisa Ivanovna was the closest friend of Lenin's wife Nadezhda Krupskaya. Radchenko was probably the person, who formed Lenin's views on the value of peat as a fuel and thus most strongly influenced the development of Russian peatland science and exploitation. Photo: Hans Joosten.

United Kingdom

Strathy South wind farm in the Flow Country gets consent

Scottish Ministers have in the last week of April granted planning consent to SSE's hugely controversial Strathy South wind farm proposal for Sutherland in the Scottish Highlands. The decision follows years of deliberations and campaigning and an independent public inquiry held back in early 2015. The energy giant will now push ahead with its 39 turbine plan for the site, which sits next to the Strathy North wind farm, completed in 2016. The go ahead was given despite conservation groups calling for the plan to be scrapped due to the environmental importance of the area. The windfarm will be located in the Caithness and Sutherland Peatlands Special Protection Area and Ramsar site. An RSPB Scotland spokeswoman said: "The Scottish Minsters' approval of the Strathy South windfarm is desperately disappointing. Strathy South is right in the very heart of the special protection area and Ramsar site, a European and internationally important place for wildlife. The decision to approve a windfarm in this extremely sensitive location sits very awkwardly with Scottish Ministers commitments to maintain the highest international environmental standards." She added: "RSPB Scotland will be looking very closely at this decision over the coming days before we decide what further action might be possible to help protect this very special place." MSP Edward Mountain added his voice to that of the RSPB saying: "Local views were clearly over-ruled. I believe that local planning decisions should be made locally. Anything else flies in the face of democracy." The project has not been without local support, however, with the chairwoman of Strathy and Armadale Community Council, Janette Mackay, welcoming the Scottish Government's decision. She hopes the community will see significant benefits from the windfarm and said: "After waiting nearly three years for the result of the public enquiry we are delighted to learn that Strathy South has been given the go ahead. We can now look forward to seeing the work start up again with all the benefits that brings to our young workers, businesses and the North Coast area, which has been sadly neglected." Mike Seaton, SSE's Director of Development, also pledged benefits to the area. He said: "The Strathy South project will deliver renewable energy and significant net environmental gain through the long-term restoration of extensive areas of degraded peatland."

- https://www.energyvoice.com/otherenergy/170151/rspb-desperately-disappointed-government-approved-a-windfarm/
- https://renewablesnow.com/news/scotland-okays-133-mw-strathy-south-wind-project-610738/
- https://www.energyvoice.com/otherenergy/170316/two-wind-farms-rejected/

Windmill construction and blanket bog landscape restoration in Sutherland, Scotland. Photo: Hans Joosten.

North-America

Greenland

Greenland's biggest fire is a 'warning' for its future

Last summer Greenland's biggest wildfire on record, burned through kilometers of thawed peatland. Black carbon particles from smoke plumes can darken Greenland's vast ice sheet, contributing to more heat absorption and more melting. Scientists who studied the wildfire said that nearly a third of the soot landed on Greenland's ice sheet. They warned that much bigger blazes could move through the icy island in the future, and the emissions from these fires could contribute to further melting of the already thinning ice sheet. "I think it's a warning sign that something like this can happen on permafrost that was supposed to be melting at the end of the century," rather than today, Andreas Stohl, a senior scientist at the Norwegian Institute for Air Research (NILU), told Live Science. Stohl and his colleagues presented the results of their study on April 11 at the annual meeting of the European Geosciences Union in Vienna.

Using a computer model to simulate how soot would have been carried in the atmosphere, the researchers estimated that about 7 tons of an aerosol called black carbon — 30 percent of the total emissions from that fire — landed on the ice sheet. This amount of carbon didn't have much of an impact on the ice sheet's overall albedo, or reflectivity. , Stohl and Evangeliou said. The wildfire, while unprecedented in size for Greenland, was small in comparison to the wildfires that raged over mainland North America last year. (Record-breaking wildfires in British Columbia in 2017 burned more than 4,600 square miles, or 12,000 square kilometers, according to Canadian news magazine Maclean's.) By sending giant smoke plumes into the atmosphere, the North American fires deposited much more carbon on the Greenland ice sheet than the Greenland wildfire, Evangeliou said. However, the Greenland fire was much more effective at dropping carbon onto the ice sheet, he explained.

"If larger fires would burn, they would actually have a substantial impact on melting," Stohl said. And, there's a greater chance of such fires, if more of Greenland's permafrost melts and exposes peat —which is actually the early-stage material used in coal formation, and so it burns easily.

Perhaps more worrisome, these peat fires can burn underground and unnoticed for a long time. "We cannot actually be sure that the fires (in Greenland) are out," Stohl said.

- https://www.livescience.com/62297-greenland-biggest-wildfire-warning-sign.html

USA

SWS files brief in Clean Water Rule suspension case

On Monday May 14, 2018, the Society of Wetland Scientists has filed an amicus curiae brief in the U.S. District Court for the Southern District of New York to emphasize the importance of science in agency rulemakings. Several states and organizations have filed suit against the Trump administration for the suspension of the 2015 Clean Water Rule. The Clean Water Rule was designed to protect the streams and wetlands on which Americans' health and economy depend. The U.S. Environmental Protection Agency and U.S. Army Corps of Engineers are now considering repealing that rule and have suspended it for two years. The SWS brief asserts that the agencies must consider the scientific basis of the Clean Water Rule before suspending it

"Every aspect of the Clean Water Act's implementation requires the use of science," said Professor Royal Gardner of the Institute for Biodiversity Law and Policy at Stetson University College of Law, who is one of the authors of the brief. "When the agencies disregard science, their judgments deserve no deference." See prior SWS comment letters pertaining to the Clean Water Rule on the SWS Letters of Comment page.

> "The ongoing attempt, if successful, by the EPA and USACE to undermine the scientific basis of the Clean Water Act, specifically to restrict the definition of what is a water of the United States, would have a significant impact on the future of wetlands in the US. SWS will do everything in its power to ensure that science not politics will continue to be the foundation for American wetland regulations and policies."
>
> Arnold van der Valk, President of SWS.

Peatland conservation relevant papers April 2018

Collected by Hans Joosten: joosten@uni-greifswald.de

1. Global peatland initiation driven by regionally asynchronous warming: http://www.pnas.org/content/early/2018/04/10/1717838115
2. Carbon budgets and valuation of carbon sequestration of Zoige alpine peatland: http://en.cnki.com.cn/Article_en/CJFDTOTAL-LKGL201801004.htm
3. Effects of rotational prescribed burning and sheep grazing on moorland plant communities: Results from a 60-year intervention experiment: https://onlinelibrary.wiley.com/doi/abs/10.1002/ldr.2953
4. Evidence of Holocene water level changes inferred from diatoms and the evolution of the Honghe Peatland on the Sanjiang Plain of Northeast China: https://www.sciencedirect.com/science/article/pii/S1040618217307942
5. Evaluating the timing of the start of the Anthropocene from Northeast China: Applications of stratigraphic indicators: https://www.sciencedirect.com/science/article/pii/S1470160X17306088
6. Record of Anthropocene pollution sources of lead in disturbed peatlands from Southern Poland: https://www.sciencedirect.com/science/article/pii/S1352231018300748
7. Three millennia of vegetation and environmental dynamics in the Lagunas de Mojanda region, northern Ecuador: https://www.degruyter.com/downloadpdf/j/acpa.2017.57.issue-2/acpa-2017-0016/acpa-2017-0016.pdf
8. Blue water trade-offs with vegetation in a CO_2-enriched climate: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1002/2018GL077051?campaign=woletoc
9. Which agglomeration payment for a sustainable management of organic soils in Switzerland? – An experiment accounting for farmers' cost heterogeneity: https://www.sciencedirect.com/science/article/pii/S0921800917314404
10. Micrometeorological measurement of methane flux above a tropical peat swamp forest: https://www.sciencedirect.com/science/article/pii/S0168192318301084
11. Distribution of nitrous oxide emissions from managed organic soils under different land uses estimated by the peat C/N ratio to improve national GHG inventories: https://www.sciencedirect.com/science/article/pii/S0048969718307289
12. Carbon emissions from oil palm development on deep peat soil in Central Kalimantan Indonesia: https://www.sciencedirect.com/science/article/pii/S2213305418300274
13. Short-term exposure to oil sand process-affected water does not reduce microbial potential activity in three contrasting peatland types: https://link.springer.com/article/10.1007/s13157-018-1026-5
14. Effects of both substrate and nitrogen and phosphorus fertilizer on *Sphagnum palustre* growth in subtropical high-mountain regions and implications for peatland recovery: https://link.springer.com/article/10.1007/s11273-018-9598-7
15. Removal of birch as a means of protecting raised bog mossy vegetation Ledo-Sphagnetum magellanici: https://link.springer.com/article/10.1007/s11273-018-9601-3
16. Testate amoebae community analysis as a tool to assess biological impacts of peatland use: https://link.springer.com/article/10.1007/s11273-018-9594-y
17. Laggs can develop and be restored inside a raised bog: https://link.springer.com/article/10.1007/s11273-018-9597-8
18. A review of land-based greenhouse gas flux estimates in Indonesia: http://iopscience.iop.org/article/10.1088/1748-9326/aab531/meta
19. Palaeoecology of *Sphagnum riparium* (Ångström) in Northern Hemisphere peatlands: Implications for peatland conservation and palaeoecological research: https://www.sciencedirect.com/science/article/pii/S0034666717302294
20. Draining effects on recent accumulation rates of C and N in Zoige alpine peatland in the Tibetan Plateau: http://www.mdpi.com/2073-4441/10/5/576
21. Estimating peatland water table depth and net ecosystem exchange: A comparison between satellite and airborne imagery: http://www.mdpi.com/2072-4292/10/5/687
22. Tropical peatland vegetation structure and biomass: Optimal exploitation of airborne laser scanning: http://www.mdpi.com/2072-4292/10/5/671
23. Detecting trends in wetland extent from MODIS derived soil moisture estimates: http://www.mdpi.com/2072-4292/10/4/611
24. Airborne hyperspectral evaluation of maximum gross photosynthesis, gravimetric water content, and CO_2 uptake efficiency of the Mer Bleue ombrotrophic peatland: http://www.mdpi.com/2072-4292/10/4/565
25. Inferring water table depth dynamics from ENVISAT-ASAR C-Band backscatter over a range of peatlands from deeply-drained to natural conditions: http://www.mdpi.com/2072-4292/10/4/536

26. Passive L-Band microwave remote sensing of organic soil surface layers: A tower-based experiment: http://www.mdpi.com/2072-4292/10/2/304
27. Does litter input determine carbon storage and peat organic chemistry in tropical peatlands?: https://www.sciencedirect.com/science/article/pii/S0016706117320128
28. Subsidence and carbon dioxide emissions in a smallholder peatland mosaic in Sumatra, Indonesia: https://link.springer.com/article/10.1007%2Fs11027-018-9803-2
29. Peatland carbon accumulation following wildfire on the Boreal Plains: Implications for peatland reclamation and wildfire management: https://macsphere.mcmaster.ca/handle/11375/22817
30. Environmental controls of C, N and P biogeochemistry in peatland pools: https://www.sciencedirect.com/science/article/pii/S0048969718308179
31. Afforestation of cutaway peatlands: effect of wood ash on biomass formation and carbon balance: https://www.degruyter.com/view/j/fsmu.2017.67.issue-1/fsmu-2017-0010/fsmu-2017-0010.xml
32. Atmospheric metal pollution records in the Kovářská Bog (Czech Republic) as an indicator of anthropogenic activities over the last three millennia: https://www.sciencedirect.com/science/article/pii/S004896971830901X
33. Consequences of 1.5 °C and 2 °C global warming levels for temperature and precipitation changes over Central Africa: http://iopscience.iop.org/article/10.1088/1748-9326/aab048/meta
34. Unravelling past impacts of climate change and land management on historic peatland development using proxy-based reconstruction, monitoring data and process modelling: https://onlinelibrary.wiley.com/doi/abs/10.1111/gcb.14298
35. Testing the relationship between testate amoeba community composition and environmental variables in a coastal tropical peatland: https://www.sciencedirect.com/science/article/pii/S1470160X18301766
36. The plight of Amazonia's oldest peatland: https://onlinelibrary.wiley.com/doi/full/10.1111/gto.12222
37. Response of testate amoebae to a late Holocene ecosystem shift in an Amazonian peatland: https://www.sciencedirect.com/science/article/pii/S0932473918300142
38. Depth-resolved physicochemical characteristics of active layer and permafrost soils in an Arctic polygonal tundra region: https://agupubs.onlinelibrary.wiley.com/doi/epdf/10.1002/2018JG004413
39. Evaluating the potential of testate amoebae as indicators of hydrological conditions in boreal forested peatlands: https://www.sciencedirect.com/science/article/pii/S1470160X18300347
40. Vegetation and fire dynamics during the last 4000 years in the Cabañeros National Park (central Spain): https://www.sciencedirect.com/science/article/pii/S0034666717302191
41. Characterization and comparison of microbial soil diversity in two Andean peatlands in different states of conservation-Vega Tocorpuri: https://file.scirp.org/Html/12-2170613_83682.htm
42. The role of channel fens in permafrost degradation induced changes in peatland discharge at Scotty Creek, NT: http://scholars.wlu.ca/cgi/viewcontent.cgi?article=3137&context=etd
43. Naturnahe Moorrand-Fichtenwälder im Bayerischen Wald (Natural forests of Norway spruce at peat bog margins in Bavarian Forest National Park): http://www.afsv.de/download/literatur/waldoekologie-online/waldoekologie-online_heft-17-1.pdf
44. Transition from a warm and dry to a cold and wet climate in NE China across the Holocene: https://www.sciencedirect.com/science/article/pii/S0012821X1830222X
45. Thermodynamic control of the carbon budget of a peatland: https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2017JG003996